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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,646	11/07/2003	Tetsuro Tojo	244779US3	3064

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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
DINH, BACH T	

ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
09/04/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/702,646	TOJO ET AL.	
	Examiner	Art Unit	
	BACH T. DINH	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Summary

1. This is the response to the Amendment filed on 06/03/2008.

2. Claims 1-9 remain pending in the application.

3. The 35 U.S.C. 103(a) rejections of claims 1-5 are withdrawn in view of Applicant's amendments to claims 1 and 4-5.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Jackson (US 2004/0037768).

According to the specification, the inert gas substitution means includes the inert gas feeding line 91, the inert gas storage tank 92, the second automatic valve 73, the automatic valve 74, and an HF feeding interruption detecting means (see specification on page 6).

Addressing claim 1, Jackson discloses a fluorine gas generator (gas generation cell 14) for generating fluorine gas by electrolyzing an electrolytic bath comprising a hydrogen fluoride-containing mixed molten salt [0047], which generator is equipped with:

A hydrogen fluoride gas feed line (input supply line 12, figure 1), one end of which is connected to a hydrogen fluoride gas supply source (in figure 1, Jackson disclosed that HF gas is supplied at 0-774 gram/hour; therefore, it is inherent that there is a gas supply source connected to the input supply line 12) and the other end of which is connected to a hydrogen fluoride gas inlet disposed in the electrolytic bath (in figure 3, one end of the HF inlet is disposed in the electrolytic bath of cell 1), for feeding hydrogen fluoride gas into the electrolytic bath [0047],

A first automatic valve disposed on the hydrogen fluoride gas feed line (valve 5 disposed on the HF inlet in figure 3; furthermore, Jackson disclosed that the valves can be air operated [0056] and electronic valve [0062]; therefore, the valves disclosed by Jackson are automatic) and capable of being closed on the occasion of interruption of hydrogen fluoride gas feeding (the valves disclosed by Jackson is inherently capable of being closed in any occasions, including the occasion in which the feeding of hydrogen fluoride is interrupted),

An inert gas substitution (nitrogen purge mechanism, [0054], figure 3) means for eliminating the hydrogen fluoride gas remaining in at least part of the line on the side downstream from the first automatic valve on the hydrogen fluoride gas feed line, which part is located downstream of the first automatic valve and upstream of the hydrogen fluoride as inlet (Jackson discloses the nitrogen purge mechanism purges the entire gas generation system, which includes every part of the HF feed line, including the portion that is located downstream from the valve 5 and upstream of the inlet), and substituting an inert gas (inert nitrogen gas) therefore on the occasion of interruption of hydrogen

fluoride gas feeding ([0054], Jackson discloses nitrogen purge is performed during scheduled maintenance, during which the operation of the nitrogen generator 14, which includes the feeding of hydrogen fluorine gas is inherently stopped or interrupted).

Addressing claim 4, Jackson discloses a fluorine gas generator for generating fluorine gas by electrolyzing an electrolyte bath comprising a hydrogen fluoride-containing mixed molten salt [0047], which generator is equipped with:

A hydrogen fluoride gas feed line (input supply line 12, figure 1), one end of which is connected to a hydrogen fluoride gas supply source (in figure 1, Jackson disclosed that HF gas is supplied at 0-774 gram/hour; therefore, it is inherent that there is a gas supply source connected to the input supply line 12) and the other end of which is connected to a hydrogen fluoride gas inlet disposed in the electrolytic bath (in figure 3, one end of the HF inlet is disposed in the electrolytic bath of cell 1), for feeding hydrogen fluoride gas into the electrolytic bath [0047],

A first automatic valve disposed on the hydrogen fluoride gas feed line (valve 5 disposed on the HF inlet in figure 3; furthermore, Jackson disclosed that the valves can be air operated [0056] and electronic valve [0062]; therefore, the valves disclosed by Jackson are automatic) and capable of being closed on the occasion of interruption of hydrogen fluoride gas feeding (the valves disclosed by Jackson is inherently capable of being closed in any occasions, including the occasion in which the feeding of hydrogen fluoride is interrupted),

An inert gas substitution (nitrogen purge mechanism, [0054], figure 3) means for eliminating the hydrogen fluoride gas remaining in at least part of the line on the side downstream from the first automatic valve on the hydrogen fluoride gas feed line, which part is located downstream of the first automatic valve and upstream of the hydrogen fluoride as inlet (Jackson discloses the nitrogen purge mechanism purges the entire gas generation system, which includes every part of the HF feed line, including the portion that is located downstream from the valve 5 and upstream of the inlet), and substituting an inert gas (inert nitrogen gas) in case of emergency in the fluorine gas generator ([0054], Jackson discloses nitrogen purge is performed during scheduled maintenance or when the sodium fluorine traps 32 have reached the end of their lives; which are considered as emergency situations).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 2-3, 5 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson (US 2004/0037768).

Addressing claim 6, Jackson discloses a fluorine gas generator (gas generation cell 14) for generating fluorine gas by electrolyzing an electrolytic bath comprising a hydrogen fluoride-containing mixed molten salt [0047], which generator is equipped with:

A hydrogen fluoride gas feed line (input supply line 12, figure 1), one end of which is connected to a hydrogen fluoride gas supply source (in figure 1, Jackson disclosed that HF gas is supplied at 0-774 gram/hour; therefore, it is inherent that there is a gas supply source connected to the input supply line 12) and the other end of which is connected to a hydrogen fluoride gas inlet disposed in the electrolytic bath (in figure 3, one end of the HF inlet is disposed in the electrolytic bath of cell 1), for feeding hydrogen fluoride gas into the electrolytic bath [0047],

A first automatic valve disposed on the hydrogen fluoride gas feed line (valve 5 disposed on the HF inlet in figure 3; furthermore, Jackson disclosed that the valves can be air operated [0056] and electronic valve [0062]; therefore, the valves disclosed by Jackson are automatic) and capable of being closed on the occasion of interruption of hydrogen fluoride gas feeding (the valves disclosed by Jackson is inherently capable of being closed in any occasions, including the occasion in which the feeding of hydrogen fluoride is interrupted),

An inert gas substitution (nitrogen purge mechanism, [0054], figure 3) means for eliminating the hydrogen fluoride gas remaining in at least part of the line on the side

downstream from the first automatic valve on the hydrogen fluoride gas feed line, which part is located downstream of the first automatic valve and upstream of the hydrogen fluoride as inlet (Jackson discloses the nitrogen purge mechanism purges the entire gas generation system, which includes every part of the HF feed line, including the portion that is located downstream from the valve 5 and upstream of the inlet), and substituting an inert gas (inert nitrogen gas) for purging the gas generation system during maintenance [0054].

Jackson fails to disclose substituting the inert gas in case the first automatic valve is closed.

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Jackson by closing the valve 5 of the hydrogen fluoride supply line during maintenance and purging with N_2 gas because closing the valve of the HF supply line during maintenance would ensure that HF would not leak to the outside environment during maintenance and closing the valve of the HF supply line during purging would ensure that N_2 gas would not contaminate the HF supply source.

Addressing claims 2, 5 and 7, Jackson discloses an inert feed line (in figure 3, N_2 supply line) for feeding the inert gas to the hydrogen fluoride gas feed line on the side downstream from the first automatic valve, and a second automatic valve (valve 3 in figure 3, the valve is activated by in response to the N_2 gas pressure; therefore, the valve of the N_2 supply line is automatic). Furthermore, Jackson discloses pressure sensor 16 is disposed in each gas generation cell 14 [0047] and cell pressure controller 38 measures

the pressure of process gas generation cells and cycle the process gas generation cells on and off [0079]. Jackson also discloses purging the gas generation system 10 with N_2 gas during maintenance to remove any contaminants [0054].

Jackson fails to disclose a detecting means for detecting interruption of feeding of the hydrogen fluoride gas and the second automatic valve operated in association with the detecting means to feed the inert gas into the line on the side downstream from the first automatic valve on the hydrogen fluoride gas feed line.

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Jackson by coupling the hydrogen fluoride supply line with a pressure sensor because the pressure sensor would provide a way in which one can ensure a steady supply of HF is delivered to the gas generation cell; specifically, the pressure sensor would indicate low pressure when little or no HF gas is presence in the supply line due to interruption or shutting down of the gas generation process.

Furthermore, one with ordinary skill in the art would have found it obvious to modify the device of Jackson by activate the valve of the inert gas supply line for purging the gas generation system 10 with N_2 gas only when the pressure sensor of the HF supply line indicates the flow of hydrogen fluoride is stopped or interrupted because during maintenance one would have found it obvious to shut down the HF supply line to ensure that hazardous HF gas is not released to the outside environment. The pressure sensor would indicate that the HF supply line is properly shut down.

Addressing claims 3, 8 and 9, Jackson discloses in figure 3 the N_2 supply line that carries the inert gas to the gas generation cells 14 which implies that the N_2 gas has to come from a storage source.

Jackson fails to explicitly disclose the inert gas feed line is provided with an inert gas storage tank for storing the gas to be fed.

Jackson discloses storage tank for storing storage gas for individual fabrication tool [0075].

At the time of the invention, one with ordinary skill in the art would have found it obvious to modify the device of Jackson with a storage tank for the N_2 gas because the storage tank would provide storage for the N_2 gas and a steady supply of N_2 gas to the gas generation cells 14.

Response to Arguments

9. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BACH T. DINH whose telephone number is (571)270-5118. The examiner can normally be reached on Monday-Friday EST 7:00 A.M-3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571)272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arun S. Phasge/
Primary Examiner, Art Unit 1795

BD
08/26/2008